Procedures and Guidelines

DIRECTIVE NO. ___GPG 1410.2___	**APPROVED BY Signature:** *Original Signed by*
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EXPIRATION DATE: ___January 24, 2005___	**TITLE:** __Director__

Responsible Office: 401/Mission Integration Office

Title: CONFIGURATION MANAGEMENT

PREFACE

P1. PURPOSE

This procedure establishes configuration control requirements for documents, data, and products subject to the Goddard Space Flight Center (GSFC) Quality Management System (QMS).

P2. APPLICABILITY

This procedure applies to all Goddard Space Flight Center (GSFC) organizations that are within the scope of the GSFC QMS. It applies to the development of all products and processes within the scope of the QMS. It also applies to controlled documents issued or revised after the effective date of this document, as well as to documents of external origin that are used or referenced in the conduct of work. The term "document" as used herein applies to paper and electronic documents, forms, and data.

This procedure does not apply to directives as described in GPG 1410.1, or to quality records as described in GPG 1440.7.

P3. AUTHORITY

NPD 8730.3, NASA Quality Management System Policy (ISO 9000)

P4. REFERENCES

a. NPG 1441.1, NASA Records Retention Schedules
b. GPG 1410.1, Directives and Documentation Management
c. GPG 1440.7, Control of Quality Records
d. GPG 8700.2, Design Development
e. 500-PG-8700.2.3, Issue and Management of GSFC Engineering Drawing Numbers

P5. CANCELLATION

None

P6. QUALITY RECORDS

Quality Record Title	Record Custodian	Retention
Completed Configuration Change/Approval Requests	Performing Organization	NRRS 8/5-A2 Project Test Engineering and Evaluation Files. Records may be retired to an FRC when 2 years old. Destroy when 15 years old.

PROCEDURE

1. DEFINITIONS

a. Configuration Audits – an audit by an organization of the effectiveness of its configuration management processes, either internally or of its contractor(s).

b. Configuration Baseline – configuration of a product or service, formally established at a specific point in time, which serves as a reference for further activities.

c. Configuration Change/Approval Request (CCR) – a documented request to issue, change, revise, or delete a controlled document. A generic CCR form (GSFC 4-35) meeting minimum requirements is available on the Goddard Directives Management System (GDMS).

d. Configuration Control – the element of Configuration Management concerning the systematic proposal, justification, evaluation, coordination, and disposition of approved baselines and changes, and the implementation of approved changes to baselined documentation and products (Configuration Items).

e. Configuration Control Board (CCB) – a board composed of designated individuals who review and recommend approval or disapproval of proposed baseline Configuration Items and changes, revisions, or cancellation thereto.

f. Configuration Documents – documents that define requirements, design, build/production, validation, and interfaces of a product or service.

g. Configuration Item – hardware, software, processed materials, services, or any discrete portions thereof, designated for configuration management and treated as a single entity in the configuration management process.

h. Configuration Management – a systematic process for establishing and maintaining control and evaluation of all changes to baseline documentation, products (Configuration Items), and subsequent changes to that documentation which defines the original scope of effort. The systematic control, identification, status accounting, and verification of all Configuration Identification throughout its life cycle.

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i.   Controlled Document – a document that requires document control action before the document can be issued or altered in any way.

j.   Controlled Documents List – an organization's list of controlled documents, as described in the organization's document control procedures (see Section 2.2).

k.   Data – electronic or written information.

l.   Directive - A policy, procedure and guideline, or instruction that has been approved and published by the appropriate authority. The GDMS addresses four types of directives, each of which serves a specific purpose:

(1) Goddard Policy Directive (GPD) - A policy statement that describes what is required by GSFC management for achieving NASA's vision and mission.
(2) Goddard Procedures and Guidelines (GPG) - A statement of specific, detailed procedures for implementing NASA and Goddard policies.
(3) Procedures and Guidelines (PG) – A documented description of how a Goddard organization will perform its own activities.
(4) Work Instruction (WI) – A document developed by an individual or group that delineates detailed activities to be carried out by that individual or group to accomplish a specific task or set of closely related tasks.

m. External Document – a document, such as a plan or specification, that comes from an external source and is implemented by an organization as part of the QMS. Examples include military specifications and industry standards.

n.   Effective Date – a designated date of document effectivity, not earlier than the date the document receives its final approval signature.

o.   Organization Head – the head of any organization needing to establish configuration management procedures. Examples include project managers, project scientists, branch heads, Directors Of, etc.

p.   Responsible Organization – the organization responsible for maintaining the accuracy and currency of the document/data from baseline release through all follow-on actions.

2.   CONFIGURATION MANAGEMENT

This section addresses configuration management requirements for documents. Additional requirements for configuration control of product are discussed in Section 3.

2.1   Responsibilities

Organization heads are responsible for ensuring that all documents are controlled as defined herein to meet the requirements of the GSFC QMS. Organization heads will designate an individual to be responsible for oversight and coordination of the document control activities described herein.

Documents will be controlled by means of document control procedures appropriate to the organization. The organization head shall define the process, including CCB processes. The CCB may range in size from a single individual to a group that includes all affected personnel, organizations, or systems, as appropriate.

2.1.1 The Organization head is responsible for:

a. Designating reviewers and approvers for controlled documents and changes.

b. Appointing the chairperson of the CCB.

c. Appointing permanent and ad-hoc members to the CCB, as required.

d. Continuously evaluating the effectiveness of the process.

e. Ensuring that affected organizations participate in the issue/change process.

f. Providing customer notification and obtaining approval. The customer must be able to participate in any CCB action affecting the final deliverable product.

g. Ensuring the effective management and flow of data through the CCB.

h. Ensuring that records of the process are maintained, including identification of reviewers and approvers.

i. Ensuring document and data changes are verified in affected systems or elements thereof.

j. Defining requirements for periodic Configuration Audits, to be conducted as required, to verify that configuration management procedures meet specified requirements.

2.1.2 The CCB has the following responsibilities and authorities:

a. Formally evaluating, dispositioning, and documenting its actions on proposed new documents and changes.

b. Ensuring that thorough consideration is given to the impact of each proposed change to documents in terms of effect on product, its processing, and intended use.

c. Ensuring that applicable Controlled Document Lists or equivalent control methods are current and maintained in sufficient detail to clearly identify the revision status and effective dates of all controlled documents.

2.1.3 An organization that is responsible for designated Center-wide functions is responsible for maintaining the governing procedures as controlled documents.

2.2   Configuration Control Procedures

Organizations under the scope of the QMS shall control documents in accordance with an approved procedure, which addresses document control. The Directorate shall determine the organizational level (e.g., Directorate, Divisional, Branch, Project) at which configuration control procedures are required. Configuration control procedures shall describe the following configuration management processes, at a minimum:

a.   Configuration Control Board (CCB) membership, and change approval authorities.

b.   Selection and identification of which items require configuration control, described by type (e.g., test plans and procedures, Systems Review Plans, Project Plans, external documents, forms,

published OMNI procedures for keeping time & attendance records, etc.). This is the organization's choice, but must include the organization's products and any in-scope documents to which the organization is subject. Describe the criteria for determining such selection.

c.   Description of issuance and change processes, and the configuration management processes used, including new or existing CCB processes, if required. This also includes describing differences in processing procedures for High, Normal, and Low Priority CCR's.

d.   Review and approval processes, including identifying review responsibilities and/or CCB's.

e.   Identification of applicable configuration management plans.

f.   Description of Controlled Documents List or equivalent control method which identifies the document number and title, revision status, effective date, and name of responsible organization.

g.   Identification of persons or positions responsible for controlling documents and the Controlled Documents List (or equivalent).

h.   Identification (e.g., numbering system) conventions to be applied to configuration items and associated documents

i.   Handling of cancelled documents.

j.   Means of ensuring that relevant versions of documents are available where needed.

k.   Means of ensuring that obsolete documents are removed or assured against unintended use.

2.2.1   Configuration control procedures may be issued either as a directive or as a controlled document by the issuing organization according to the following conventions:

2.2.1.1   A document which applies only to a single Primary Organization or lower-level organization within a Primary Organization may be issued either as a controlled document by the issuing organization, or as a directive (see GPG 1410.1). For this case, it is the issuing organization's choice.

2.2.1.2   If the procedure applies to more than one lower-level organization, it shall be a directive and will be subject to the requirements of GPG 1410.1. This convention also applies to other process documents issued or revised after the effective date of this GPG.

2.2.1.3   Process control documents that meet the criteria for Work Instructions (see GPG 1410.1) should be issued as directives and controlled through the GDMS.

2.2.1.4   Configuration control procedures are required to be in place and approved within 90 days of the effective date of this GPG.

2.2.1.5   Plans, lists, and other documents subject to frequent revision should normally not be issued as directives.

2.2.2   Draft documents will be clearly identified as drafts. Obsolete documents will be identified as such and shall be removed from points of issue or otherwise assured from unintended use.

2.2.3   Controlled documents will be retained and disposed of in accordance with NPG 1441.1.

2.3   Document Identification

Document identification numbers are required for all controlled documents. The first page (cover page) of all controlled documents, with the exception of engineering drawings, will contain, as a minimum, the following items of information:

a.   unique document number;
b.   revision level of the correct version;
c.   document title;
d.   name and organizational code of Responsible Organization; and
e.   Approval/effective date.

Engineering drawings are numbered in accordance with 500-PG-8700.2.3.

For all documents subject to revision, a footer shall be placed on the cover indicating where to confirm the proper revision status. Examples are:

CHECK THE HST TECHNICAL MANAGEMENT INFORMATION SYSTEM (TMIS) AT http://tmisx21.hst.nasa.gov/ TO VERIFY THAT THIS IS THE CORRECT VERSION PRIOR TO USE.

CHECK THE CODE 401MASTER DOCUMENTATION LIST PRIOR TO USE TO VERIFY THAT THIS IS THE CORRECT VERSION

Where practical this footer should be repeated on every page.

2.4   Configuration Change/Approval Requests (CCR)

Requests for new document release or changes are initiated by a change/approval request. Document change/approval requests will include, as a minimum, the following information:

a.   initiator name, organization code, and E-mail address;
b.   date submitted;
c.   title of document;
d.   document number;
e.   revision / change (letter and/or number) of document to be changed;
f.   description of action requested;
g.   reason for action requested; and
h.   other documents affected, with explanation.

Once the CCR is received by the responsible organization, it will be assigned a priority and processed by predefined procedures (see 2.2). Once disposition is complete, it is signed by the responsible individual, and closed. It is then filed as a quality record.

GSFC Form 4-35 is available from the GDMS Forms Master List, and meets the minimum requirements for document control. Organizations may tailor this form to their own requirements or use their own forms, as long as they meet the minimum requirements defined above and in other applicable configuration management procedures.

2.5   External Documents

External documents are controlled only to the extent that the applicable revision is identified on the Controlled Documents List or other control means. If an organization chooses to implement a different version or revision of an external document, this shall be considered a configuration change, and shall require approval as defined in paragraph 2.2.

2.6   GSFC Centralized Configuration Management System

A database is available for organizations to use in managing the configuration records. It allows record-keeping functions similar to the GDMS, and allows documents to be stored on-line similar to the way GDMS stores and displays documents. To access this system, log onto the GDMS, pick Online Applications Main Menu, and select Centralized Configuration Management System.

Use of this system is optional, but it provides a very effective system that meets the requirements for a Controlled Documents List as described in this GPG.

3.   PRODUCT CONFIGURATION MANAGEMENT

Configuration control procedures shall specifically describe the following configuration management processes, as a minimum:

a. Selection and identification of items requiring configuration control (configuration items), including the criteria for determining such selection.

b. Identification (e.g., numbering) conventions to be applied to configuration items.

c. Establishment of configuration baselines.

d. Identification, documentation, and evaluation of change requests, including identification of change requests requiring customer approval.

e. Documentation of change approvals, including effectivity considerations. If "red-line" change approval capability is desired, associated documentation, authorities, and limitations shall be addressed.

f. Implementation and verification of changes.

g. Configuration management procedures for subcontractor designs.

The Product Design Team ensures that design changes are controlled and documented in accordance with applicable configuration control procedures. Whenever the design fails to meet requirements, the PDL recommends and implements design changes in accordance with the applicable configuration management procedures. See GPG 8700.2 for details of this requirement.

CHANGE HISTORY LOG

Revision	Effective Date	Description of Changes
Baseline	01/24/00	Initial release